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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/524,727

03/14/2000

John H. Jerman

A-66167-1/ENB

9000

7590

03/29/2004

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EXAMINER

PAK, SUNG H

ART UNIT

PAPER NUMBER

2874

DATE MAILED: 03/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/524,727	JERMAN ET AL.	
	Examiner	Art Unit	
	Sung H. Pak	2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5-17 and 21-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5-17 and 21-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 March 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicant's response filed 12/29/03 has been entered. Claims 1, 5-17, 21-37 are pending. All pending claims have been carefully reconsidered by the examiner, however they remain unpatentable. A new ground of rejection has been furnished in response to the amended limitations incorporated in the independent claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 14-17, 21, 23-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Aksyuk et al (US 6,108,466).

Aksyuk et al reference discloses an optical device with all the limitations set forth in the claims, including: an optical microswitch for use in transmitting laser beams comprising a body (Fig. 8a) having plurality of inlet and outlet ports comprising optical fibers (Fig. 5a, 5b, 5c); a plurality of mirrors carried by the body (Fig. 5a); plurality of electrostatically driven comb drive assembly carried by the body (column 8 lines 20-26); microattachement means for rigidly coupling the plurality of mirrors to the respective plurality of comb drive assembly (Fig. 8a); whereby the drive assembly selectively move the mirrors from a first position out of the path of the laser beam to a second position into the path of the laser beam to direct the laser beam to one

Art Unit: 2874

of the outlet ports (Fig. 5a, 5b, 5c); a controller electrically coupled to the comb drives for providing control signals to the comb drives (Fig. 8a); wherein the plurality of mirrors and plurality of comb drives include a first mirror and a corresponding comb drive and a second mirror and a corresponding comb drive, the path of the laser beam extendable between the first comb drive and the second comb drive so that the first comb drive oppose the second comb drive relative to the path of the laser beam (Fig. 5a, column 9 lines 44-49); wherein the first mirror and corresponding comb drive is linearly disposed along a first imaginary line and the second mirror and corresponding comb drive is linearly disposed along a second imaginary line extending parallel to the first imaginary line and the path of the laser beam (Fig. 5a); wherein the first and second mirrors are each inclined to direct the laser beam in a single direction (Fig. 5a); wherein each mirror comprises dielectric reflective layer, which may further include reflective metal disposed thereon (column 3 lines 5-14); wherein the comb drives include travel stops means for limiting the movement of the mirrors (Fig. 8a, column 7 line 11- column 8 line 26).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

Art Unit: 2874

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 5-13, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aksyuk et al (US 6,108,466).

Aksyuk et al reference discloses an optical device with all the limitations set forth in the claims as discussed above, except it does not explicitly disclose the use of plurality of first mirrors and corresponding first comb drives and plurality of second mirrors and corresponding second comb drives. However, the use of plurality of input output ports and plurality of mirrors and comb drives is well known and common in the optical switch device art. The use of plurality of mirrors and comb drives sets is advantageous and desirable because it allows the optical switching device to handle plurality of optical signals with increased optical channel bandwidth. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Aksyuk device to have plurality of first mirrors and comb drives and plurality of second mirrors and comb drives linearly disposed in accordance with Fig. 5a-5c.

Claims 25-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aksyuk et al (US 6,108,466) in view of Cushing (US 6,011,652).

Aksyuk et al reference discloses an optical device with all the limitations set forth in the claims as discussed above, except it does not teach the use of optically transparent quarter-wavelength thin film disposed over the reflective metallic layer.

Art Unit: 2874

On the other hand, Cushing reference discloses multiplayer dielectric stacks for reflecting optical beams comprising quarter wavelength films disposed on the dielectric layers, wherein the dielectric layers comprising silicon dioxide, magnesium fluoride, and the like dielectric layers (column 3 lines 11-60). Such a dielectric reflectors are advantageous and desirable because they allow for a high controlled transmission and modification of transmitted optical beams. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Aksyuk device to have dielectric reflectors of Cushing.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

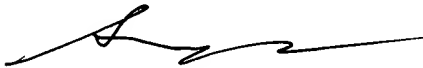
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 2874

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sung H. Pak whose telephone number is (571) 272-2353. The examiner can normally be reached on Monday - Thursday : 6:30am- 5:00pm.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Sung H. Pak
Examiner
Art Unit 2874

sp



AKM ENAYET ULLAH
PRIMARY EXAMINER